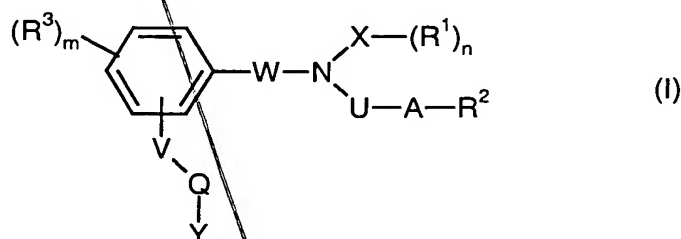


Patent Claims

1. Use of compounds which are also capable of stimulating soluble guanylate cyclase independently of the haem group in the enzyme, for preparing medicaments for the treatment of cardiovascular disorders, such as angina pectoris, ischaemia and cardiac insufficiency.
2. Use of compounds which are also capable of stimulating soluble guanylate cyclase independently of the haem group in the enzyme, for preparing medicaments for the treatment of arteriosclerosis, hypertension, thromboembolic disorders, venous disorders and fibrotic disorders, such as, in particular, hepatic fibrosis.

3. Compounds of the general formula (I)



in which

V is absent, O, NR⁴, NR⁴CONR⁴, NR⁴CO, NR⁴SO₂, COO, CONR⁴ or S(O)_n,

in which

R⁴, independently of any other radical R⁴ which may be present, is hydrogen, straight-chain or branched alkyl having up to 8 carbon atoms, cycloalkyl having 3 to 8 carbon atoms, aryl having 6 to 10 carbon atoms or arylalkyl having 7 to 18 carbon atoms, where the aryl

radical for its part may be mono- or polysubstituted by halogen, alkyl, alkoxy having up to 6 carbon atoms,

o is 0, 1 or 2,

5

Q is absent, straight-chain or branched alkylene, straight-chain or branched alkenediyl or straight-chain or branched alkynediyl having in each case up to 12 carbon atoms, which may in each case contain one or more groups from the group consisting of O, S(O)_p, NR⁵, CO, NR⁵SO₂ or CONR⁵ and which may be mono- or polysubstituted by halogen, hydroxyl or alkoxy having up to 4 carbon atoms, where optionally any two atoms of the abovementioned chain may be attached to one another forming a three- to eight-membered ring,

15

in which

R⁵ is hydrogen, straight-chain or branched alkyl having up to 8 carbon atoms or cycloalkyl having 3 to 8 carbon atoms which may be substituted by halogen or alkoxy having up to 4 carbon atoms,

20

p is 0, 1 or 2,

Y is hydrogen, NR⁸R⁹, aryl having 6 to 10 carbon atoms, an aromatic or saturated heterocycle having 1 to 9 carbon atoms and up to 3 heteroatoms from the group consisting of S, N and O or straight-chain or branched cycloalkyl having 3 to 8 carbon atoms, which may also be attached via N,

25

where the cyclic radicals may in each case be mono- to trisubstituted by straight-chain or branched alkyl, straight-chain or branched alkenyl, straight-chain or branched alkynyl, straight-chain or branched alkoxy, straight-chain or branched halogenoalkyl, straight-chain or branched halogenoalkoxy having in each case up to 8 carbon atoms,

30

straight-chain or branched cycloalkyl having 3 to 8 carbon atoms, halogen, hydroxyl, CN, SR^6 , NO_2 , NR^8R^9 , NR^7COR^{10} , $NR^7CONR^7R^{10}$ or $CONR^{11}R^{12}$,

5

in which

R^6 is hydrogen, straight-chain or branched alkyl having up to 8 carbon atoms, straight-chain or branched halogenoalkyl having up to 8 carbon atoms or cycloalkyl having 3 to 8 carbon atoms,

10

R^7 independently of any other radical R^7 which may be present is hydrogen, straight-chain or branched alkyl having up to 8 carbon atoms or cycloalkyl having 3 to 8 carbon atoms,

15

R^8 , R^9 , R^{11} and R^{12} independently of one another are hydrogen, straight-chain or branched alkyl, straight-chain or branched alkenyl having up to 8 carbon atoms, aryl having 6 to 10 carbon atoms, an aromatic heterocycle having 1 to 9 carbon atoms and up to 3 heteroatoms from the group consisting of S, N and O, arylalkyl having 8 to 18 carbon atoms, cycloalkyl having 3 to 8 carbon atoms or a radical of the formula SO_2R^{13} ,

20

25

where the aryl radical for its part may be mono- or polysubstituted by halogen, hydroxyl, CN, NO_2 , NH_2 , $NHCOR^7$, alkyl, alkoxy, halogenoalkyl or halogenoalkoxy having up to 6 carbon atoms,

30

or two substituents R^8 and R^9 or R^{11} and R^{12} may be attached to one another forming a five- or six-membered ring which may contain O or N,
in which,

R^{13} is straight-chain or branched alkyl having up to 4 carbon atoms or aryl having 6 to 10 carbon atoms, where the aryl radical for its part may be mono- or polysubstituted by halogen, CN, NO_2 , alkyl, alkoxy, halogenoalkyl or halogenoalkoxy having up to 6 carbon atoms,

R^{10} is hydrogen, straight-chain or branched alkyl having up to 12 carbon atoms, straight-chain or branched alkenyl having up to 12 carbon atoms, aryl having 6 to 10 carbon atoms, an aromatic heterocycle having 1 to 9 carbon atoms and up to 3 heteroatoms from the group consisting of S, N and O or cycloalkyl having 3 to 8 carbon atoms, which may furthermore optionally be substituted by halogen, hydroxyl, CN, NO_2 , NH_2 , $NHCOR^7$, alkyl, alkoxy, halogenoalkyl or halogenoalkoxy having up to 6 carbon atoms;

and/or the cyclic radicals may in each case be mono- to trisubstituted by aryl having 6 to 10 carbon atoms, an aromatic or saturated heterocycle having 1 to 9 carbon atoms and up to 3 heteroatoms from the group consisting of S, N and O, which may also be attached via N, which may be attached directly or via a group O, S, SO, SO_2 , NR^7 , SO_2NR^7 , $CONR^7$, straight-chain or branched alkylene, straight-chain or branched alkenediyl, straight-chain or branched alkyloxy, straight-chain or branched oxyalkyloxy, straight-chain or branched sulphonylalkyl, straight-chain or branched thioalkyl having in each case up to 8 carbon atoms and which may be mono- to trisubstituted by straight-chain or branched alkyl, straight-chain or branched alkoxy, straight-chain or branched alkoxyalkoxy, straight-chain or branched halogenoalkyl, straight-chain or branched halogenoalkoxy, carbonylalkyl or straight-chain or branched alkenyl having in each case up to 6 carbon atoms, halogen, SR^6 , CN, NO_2 , NR^8R^9 , $CONR^{15}R^{16}$ or $NR^{14}COR^{17}$,

in which

5 R^{14} is hydrogen, straight-chain or branched alkyl having up to 8 carbon atoms or cycloalkyl having 3 to 8 carbon atoms,

10 R^{15}, R^{16} independently of one another are hydrogen, straight-chain or branched alkyl having up to 8 carbon atoms, cycloalkyl having 3 to 8 carbon atoms, aryl having 6 to 10 carbon atoms or a radical of the formula SO_2R^{18} , where the aryl radical for its part may be mono- or polysubstituted by halogen, hydroxyl, CN, NO_2 , NH_2 , $NHCOR^7$, alkyl, alkoxy, halogenoalkyl or halogenoalkoxy having up to 6 carbon atoms,
15 in which

20 R^{18} is straight-chain or branched alkyl having up to 4 carbon atoms or aryl having 6 to 10 carbon atoms,

where the aryl radical for its part may be mono- or polysubstituted by halogen, hydroxyl, CN, NO_2 , NH_2 , $NHCOR^7$, alkyl, alkoxy, halogenoalkyl or halogenoalkoxy having up to
25 6 carbon atoms,

and

30 R^{17} is hydrogen, straight-chain or branched alkyl having up to 12 carbon atoms, straight-chain or branched alkenyl having up to 12 carbon atoms, aryl having 6 to 10 carbon atoms, an aromatic heterocycle having 1 to 9 carbon atoms and up to 3 heteroatoms from the group

consisting of S, N and O or cycloalkyl having 3 to 8 carbon atoms, which may furthermore optionally be substituted by halogen, hydroxyl, CN, NO₂, NH₂, NHCOR⁷, alkyl, alkoxy, halogenoalkyl or halogenoalkoxy having up to 6 carbon atoms;

and/or the cyclic radicals may be fused with an aromatic or saturated carbocycle having 1 to 10 carbon atoms or an aromatic or saturated heterocycle having 1 to 9 carbon atoms and up to 3 heteroatoms from the group consisting of S, N and O,

R³ is hydrogen, halogen, straight-chain or branched alkyl, straight-chain or branched halogenoalkyl, straight-chain or branched alkoxy, or alkoxy-carbonyl having in each case up to 4 carbon atoms, CN, NO₂ or NR¹⁹R²⁰,

in which

R¹⁹ and R²⁰ independently of one another are hydrogen, straight-chain or branched alkyl having up to 4 carbon atoms or cycloalkyl having 3 to 8 carbon atoms,

m is an integer from 1 to 4,

W is straight-chain or branched alkylene having up to 6 carbon atoms or straight-chain or branched alkenediyl having up to 6 carbon atoms which may in each case contain a group from the group consisting of O, S(O)_q, NR²¹, CO and CONR²¹, or is CO, NHCO or OCO,

in which

q is 0, 1 or 2,

R²¹ is hydrogen, straight-chain or branched alkyl having up to 8 carbon atoms or cycloalkyl having 3 to 8 carbon atoms,

5

U is straight-chain or branched alkyl having up to 4 carbon atoms,

A is aryl having 6 to 10 carbon atoms or an aromatic heterocycle having 1 to 9 carbon atoms and up to 3 heteroatoms from the group consisting of S, N and O,

which may optionally be mono- to trisubstituted by halogen, straight-chain or branched alkyl, straight-chain or branched halogenoalkyl, straight-chain or branched alkoxy, halogenoalkoxy or alkoxycarbonyl having up to 4 carbon atoms, CN, NO₂ or NR²²R²³,

15

in which

R²² and R²³ independently of one another are each hydrogen, straight-chain or branched alkyl having up to 8 carbon atoms or cycloalkyl having 3 to 8 carbon atoms, carbonylalkyl or sulphonylalkyl,

20

R² is tetrazolyl, COOR²⁴ or CONR²⁵R²⁶,

25

in which

R²⁴ is hydrogen, alkyl having 1 to 8 carbon atoms or cycloalkyl having 3 to 8 carbon atoms,

30

R²⁵ and R²⁶ independently of one another are each hydrogen, straight-chain or branched alkyl having up to

8 carbon atoms, cycloalkyl having 3 to 8 carbon atoms or a radical of the formula SO_2R^{27} , or R^{25} and R^{26} together form a five- or six-membered ring which may contain N or O,

5

in which

R^{27} is straight-chain or branched alkyl having up to 4 carbon atoms or aryl having 6 to 10 carbon atoms, where the aryl radical for its part may be mono- or polysubstituted by halogen, CN, NO_2 , alkyl, alkoxy, halogenoalkyl or halogenoalkoxy having up to 6 carbon atoms,

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X is straight-chain or branched alkylene having up to 12 carbon atoms or straight-chain or branched alkenediyl having up to 12 carbon atoms which may in each case contain one to three groups from the group consisting of O, $\text{S}(\text{O})_r$, NR^{28} , CO or CONR^{29} , aryl or aryloxy having 6 to 10 carbon atoms, where the aryl radical for its part may be mono- or polysubstituted by halogen, CN, NO_2 , alkyl, alkoxy, halogenoalkyl or halogenoalkoxy having up to 6 carbon atoms, where optionally any two atoms of the abovementioned chains are attached to one another via an alkyl chain, forming a three- to eight-membered ring,

20

25

in which

r is 0, 1 or 2,

30

R^{28} is hydrogen, alkyl having 1 to 8 carbon atoms or cycloalkyl having 3 to 8 carbon atoms,

R^{29} is hydrogen, straight-chain or branched alkyl having up to 8 carbon atoms or cycloalkyl having 3 to 8 carbon atoms,

n is 1 or 2;

R^1 is tetrazolyl, COOR^{30} or $\text{CONR}^{31}\text{R}^{32}$,

in which

R^{30} is hydrogen, alkyl having 1 to 8 carbon atoms or cycloalkyl having 3 to 8 carbon atoms,

R^{31} and R^{32} independently of one another are each hydrogen, straight-chain or branched alkyl having up to 8 carbon atoms, cycloalkyl having 3 to 8 carbon atoms or a radical of the formula SO_2R^{33} ,

in which

R^{33} is straight-chain or branched alkyl having up to 4 carbon atoms or aryl having 6 to 10 carbon atoms, where the aryl radical for its part may be mono- or polysubstituted by halogen, CN, NO_2 , alkyl, alkoxy, halogenoalkyl or halogenoalkoxy having up to 6 carbon atoms,

and its stereoisomers and salts.

4. Compounds according to Claim 3,

in which

V is absent, O, NR^4 , NR^4CONR^4 , NR^4CO , NR^4SO_2 , COO , CONR^4 or S(O)_o ,

5

in which

R^4 independently of any other radical R^4 which may be present, is hydrogen, straight-chain or branched alkyl having up to 8 carbon atoms, cycloalkyl having 3 to 8 carbon atoms, aryl having 6 to 10 carbon atoms or arylalkyl having 7 to 18 carbon atoms, where the aryl radical for its part may be mono- or polysubstituted by halogen, alkyl, alkoxy having up to 6 carbon atoms,

10

HS

15

o is 0, 1 or 2,

Q is absent, straight-chain or branched alkylene, straight-chain or branched alkenediyl or straight-chain or branched alkinediyl having in each case up to 12 carbon atoms, which may in each case contain one or more groups from the group consisting of O, S(O)_p , NR^5 , CO, NR^5SO_2 or CONR^5 and which may be mono- or polysubstituted by halogen, hydroxyl or alkoxy having up to 4 carbon atoms, where optionally any two atoms of the abovementioned chain may be attached to one another forming a three- to eight-membered ring,

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25

in which

R^5 is hydrogen, straight-chain or branched alkyl having up to 8 carbon atoms or cycloalkyl having 3 to 8 carbon atoms which may be substituted by halogen or alkoxy having up to 4 carbon atoms,

30

p is 0, 1 or 2,

Y is hydrogen, NR^8R^9 , aryl having 6 to 10 carbon atoms, an aromatic or saturated heterocycle having 1 to 9 carbon atoms and up to 3 heteroatoms from the group consisting of S, N and O or straight-chain or branched cycloalkyl having 3 to 8 carbon atoms, which may also be attached via N,

where the cyclic radicals may in each case be mono- to trisubstituted by straight-chain or branched alkyl, straight-chain or branched alkenyl, straight-chain or branched alkynyl, straight-chain or branched alkoxy, straight-chain or branched alkoxyalkoxy, straight-chain or branched halogenoalkyl, straight-chain or branched halogenoalkoxy having in each case up to 8 carbon atoms, straight-chain or branched cycloalkyl having 3 to 8 carbon atoms, halogen, hydroxyl, CN , SR^6 , NO_2 , NR^8R^9 , $\text{NR}^7\text{COR}^{10}$, $\text{NR}^7\text{CONR}^7\text{R}^{10}$ or $\text{CONR}^{11}\text{R}^{12}$,

in which

R^6 is hydrogen, straight-chain or branched alkyl having up to 8 carbon atoms, straight-chain or branched halogenoalkyl having up to 8 carbon atoms or cycloalkyl having 3 to 8 carbon atoms,

R^7 independently of any other radical R^7 which may be present is hydrogen, straight-chain or branched alkyl having up to 8 carbon atoms or cycloalkyl having 3 to 8 carbon atoms,

R^8 , R^9 , R^{11} and R^{12} independently of one another are hydrogen, straight-chain or branched alkyl, straight-chain or branched alkenyl having up to 8 carbon atoms, aryl having 6 to 10 carbon atoms, an aromatic heterocycle having 1 to 9 carbon atoms and up to 3 heteroatoms from the group consisting of S, N and O, arylalkyl having 8 to 18 carbon

atoms, cycloalkyl having 3 to 8 carbon atoms or a radical of the formula SO_2R^{13} ,

where the alkyl radical for its part may be mono- or polysubstituted by halogen, hydroxyl, CN, NO_2 , NH_2 , NHCOR^7 , alkyl, alkoxy, halogenoalkyl or halogenoalkoxy having up to 6 carbon atoms,

or two substituents R^8 and R^9 or R^{11} and R^{12} may be attached to one another forming a five- or six-membered ring which may contain O or N,

in which,

R^{13} is straight-chain or branched alkyl having up to 4 carbon atoms or aryl having 6 to 10 carbon atoms, where the aryl radical for its part may be mono- or polysubstituted by halogen, CN, NO_2 , alkyl, alkoxy, halogenoalkyl or halogenoalkoxy having up to 6 carbon atoms,

R^{10} is hydrogen, straight-chain or branched alkyl having up to 12 carbon atoms, straight-chain or branched alkenyl having up to 12 carbon atoms, aryl having 6 to 10 carbon atoms, an aromatic heterocycle having 1 to 9 carbon atoms and up to 3 heteroatoms from the group consisting of S, N and O or cycloalkyl having 3 to 8 carbon atoms, which may furthermore optionally be substituted by halogen, hydroxyl, CN, NO_2 , NH_2 , NHCOR^7 , alkyl, alkoxy, halogenoalkyl or halogenoalkoxy having up to 6 carbon atoms;

and/or the cyclic radicals may in each case be mono- to trisubstituted by aryl having 6 to 10 carbon atoms, an aromatic or saturated heterocycle having 1 to 9 carbon atoms and up to 3 heteroatoms from the group consisting of S, N and O, which may also be attached via N,

which may be attached directly or via a group O, S, SO, SO₂, NR⁷, SO₂NR⁷, CONR⁷, straight-chain or branched alkylene, straight-chain or branched alkenediyl, straight-chain or branched alkyloxy, straight-chain or branched oxyalkyloxy, straight-chain or branched sulphonylalkyl, straight-chain or branched thioalkyl having in each case up to 8 carbon atoms and which may be mono- to trisubstituted by straight-chain or branched alkyl, straight-chain or branched alkoxy, straight-chain or branched alkoxyalkoxy, straight-chain or branched halogenoalkyl, straight-chain or branched halogenoalkoxy, carbonylalkyl or straight-chain or branched alkenyl having in each case up to 6 carbon atoms, halogen, SR⁶, CN, NO₂, NR⁸R⁹, CONR¹⁵R¹⁶ or NR¹⁴COR¹⁷,

in which

R¹⁴ is hydrogen, straight-chain or branched alkyl having up to 8 carbon atoms or cycloalkyl having 3 to 8 carbon atoms,

R¹⁵, R¹⁶ independently of one another are hydrogen, straight-chain or branched alkyl having up to 8 carbon atoms, cycloalkyl having 3 to 8 carbon atoms or a radical of the formula SO₂R¹⁸,

in which

R¹⁸ is straight-chain or branched alkyl having up to 4 carbon atoms or aryl having 6 to 10 carbon atoms,

where the aryl radical for its part may be mono- or polysubstituted by halogen, CN, NO₂, alkyl, alkoxy, halogenoalkyl or halogenoalkoxy having up to 6 carbon atoms,

and

5

R^{17} is hydrogen, straight-chain or branched alkyl having up to 12 carbon atoms, straight-chain or branched alkenyl having up to 12 carbon atoms, aryl having 6 to 10 carbon atoms, an aromatic heterocycle having 1 to 9 carbon atoms and up to 3 heteroatoms from the group consisting of S, N and O or cycloalkyl having 3 to 8 carbon atoms, which may furthermore optionally be substituted by halogen, CN, NO₂, alkyl, alkoxy, halogenoalkyl or halogenoalkoxy having up to 6 carbon atoms;

10

15

and/or the cyclic radicals may be fused with an aromatic or saturated carbocycle having 1 to 10 carbon atoms or an aromatic or saturated heterocycle having 1 to 9 carbon atoms and up to 3 heteroatoms from the group consisting of S, N and O,

20

R^3 is hydrogen, halogen, straight-chain or branched alkyl, straight-chain or branched halogenoalkyl or straight-chain or branched alkoxy having in each case up to 4 carbon atoms,

m is an integer from 1 to 4,

25

W is straight-chain or branched alkylene or straight-chain or branched alkenediyl having in each case up to 4 carbon atoms,

U is -CH₂-,

30

A is phenyl or an aromatic heterocycle having 1 to 9 carbon atoms and up to 3 heteroatoms from the group consisting of S, N and O,

which may optionally be mono- to trisubstituted by halogen, straight-chain or branched alkyl, straight-chain or branched halogenoalkyl or straight-chain or branched alkoxy having up to 4 carbon atoms,

5 R^2 is COOR^{24} ,

in which

10 R^{24} is hydrogen or straight-chain or branched alkyl
 having up to 6 carbon atoms,

15 X is straight-chain or branched alkylene having up to 8 carbon atoms or
 straight-chain or branched alkenediyl having up to 8 carbon atoms
 which may in each case contain one to three groups from the group
 consisting of phenyl, phenoxy, O, CO and CONR^{29} ,

in which

20 R^{29} is hydrogen, straight-chain or branched alkyl having up to
 6 carbon atoms or cycloalkyl having 3 to 6 carbon atoms,

n is 1 or 2,

25 R^1 is COOR^{30} ,

in which

30 R^{30} is hydrogen or straight-chain or branched alkyl
 having up to 6 carbon atoms.

5. Compounds according to Claim 3,

in which

V is absent, O, S, or NR^4 ,

in which

5

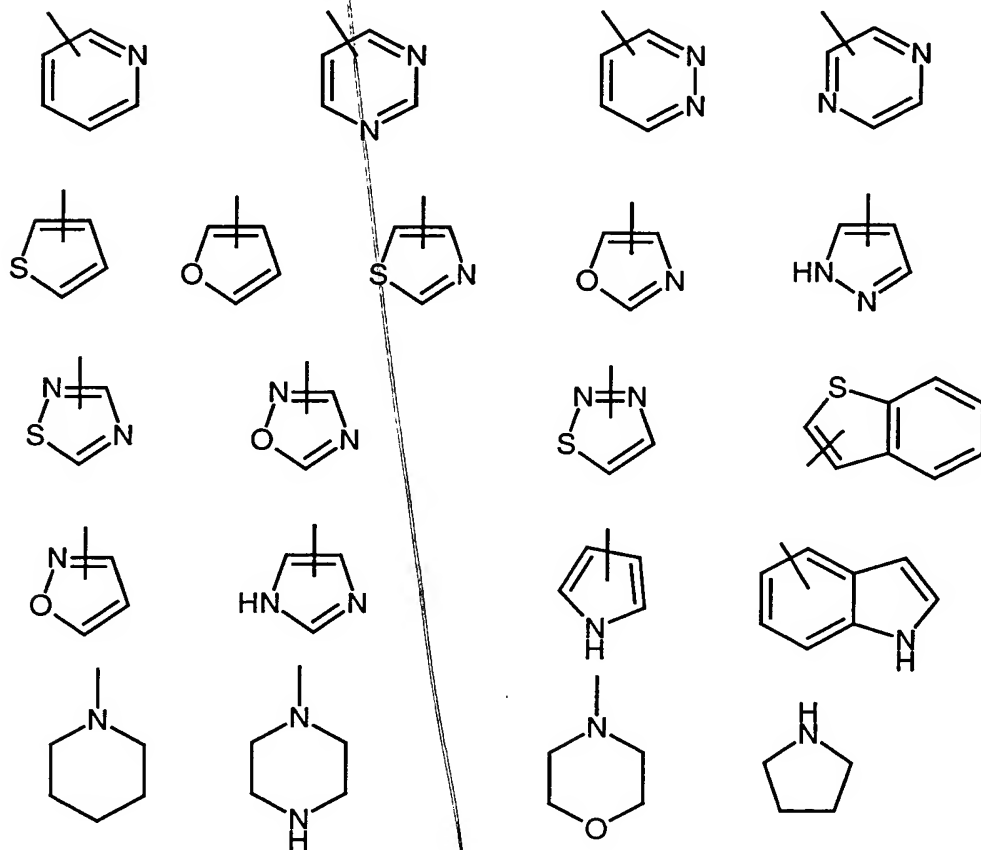
R^4 is hydrogen or methyl,

Q is absent, straight-chain or branched alkylene having up to 9 carbon atoms or straight-chain or branched alkenediyl or straight-chain or branched alkinediyl having up to 4 carbon atoms which may be monosubstituted by halogen,

10

Y is H, NR^8R^9 , cyclohexyl, phenyl, naphthyl or a heterocycle from the group consisting of

AK



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which may also be attached via N,

where the cyclic radicals may in each case be mono- to trisubstituted by straight-chain or branched alkyl, straight-chain or branched alkenyl, straight-chain or branched alkynyl, straight-chain or branched alkoxy, straight-chain or branched alkoxyalkoxy, straight-chain or branched halogenoalkyl, straight-chain or branched halogenoalkoxy having in each case up to 4 carbon atoms, straight-chain or branched cycloalkyl having 3 to 6 carbon atoms, F, Cl, Br, I, NO₂, SR⁶, NR⁸R⁹, NR⁷COR¹⁰ or CONR¹¹R¹²,

in which

R⁶ is hydrogen, straight-chain or branched alkyl having up to 8 carbon atoms, or straight-chain or branched halogenoalkyl having up to 4 carbon atoms,

R⁷ is hydrogen, or straight-chain or branched alkyl having up to 4 carbon atoms,

R⁸, R⁹, R¹¹ and R¹² independently of one another are hydrogen, straight-chain or branched alkyl having up to 4 carbon atoms or phenyl,

where the phenyl radical may be mono- to trisubstituted by F, Cl Br, hydroxyl, methyl, ethyl, n-propyl, i-propyl, n-butyl, s-butyl, i-butyl, t-butyl, methoxy, ethoxy, amino, acetylamino, NO₂, CF₃, OCF₃ or CN,

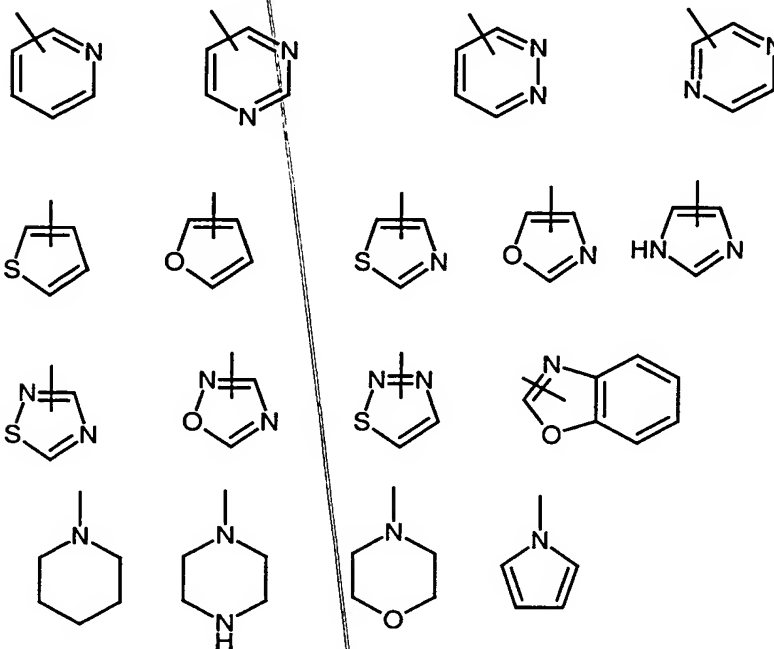
or two substituents R⁸ and R⁹ or R¹¹ and R¹² may be attached to one another forming a five- or six-membered ring which may be interrupted by O or N,

R¹⁰ is hydrogen, straight-chain or branched alkyl having up to 4 carbon atoms or phenyl,

where the phenyl radical may be mono- to trisubstituted by F, Cl Br, hydroxyl, methyl, ethyl, n-propyl, i-propyl,

n-butyl, s-butyl, i-butyl, t-butyl, methoxy, ethoxy, amino, acetylamino, NO_2 , CF_3 , OCF_3 or CN ;

and/or the cyclic radicals may in each case be mono- to trisubstituted by phenyl or a heterocycle from the group consisting of



which may be attached directly or via a group O , S , SO , SO_2 , NR^4 , SO_2NR^7 , CONR^7 , straight-chain or branched alkylene, straight-chain or branched alkenediyl, straight-chain or branched alkyloxy, straight-chain or branched oxyalkyloxy, straight-chain or branched sulphonylalkyl, straight-chain or branched thioalkyl having in each case 4 carbon atoms and which may be mono- to trisubstituted by straight-chain or branched alkyl, straight-chain or branched alkoxy, straight-chain or branched alkoxyalkoxy, straight-chain or branched halogenoalkyl or straight-chain or branched alkenyl having in each case up to 4 carbon atoms, F , Cl , Br , I , CN , SCH_3 , OCF_3 , NO_2 , NR^8R^9 or $\text{NR}^{14}\text{COR}^{17}$,

in which

R¹⁴ is hydrogen, straight-chain or branched alkyl having up to 8 carbon atoms, or cycloalkyl having 3 to 8 carbon atoms,

5 and

10 R¹⁷ is hydrogen, straight-chain or branched alkyl having up to 12 carbon atoms, straight-chain or branched alkenyl having up to 12 carbon atoms, aryl having 6 to 10 carbon atoms, an aromatic heterocycle having 1 to 9 carbon atoms and up to 3 heteroatoms from the group consisting of S, N and O or cycloalkyl having 3 to 8 carbon atoms, which may furthermore optionally be substituted by F, Cl Br, hydroxyl, methyl, ethyl, n-propyl, i-propyl, n-butyl, s-butyl, i-butyl, t-butyl, methoxy, ethoxy, amino, acetylamino, NO₂, CF₃, OCF₃ or CN;

15

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and/or the cyclic radicals may be fused with an aromatic or saturated carbocycle having 1 to 10 carbon atoms or an aromatic or saturated heterocycle having 1 to 9 carbon atoms and up to 3 heteroatoms from the group consisting of S, N and O,

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R³ is hydrogen or fluorine,

m is an integer from 1 to 2,

W is CH₂, -CH₂CH₂-, CH₂CH₂CH₂, CH=CHCH₂,

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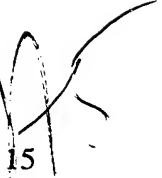
U is -CH₂-,

A is phenyl, pyridyl, thienyl or thiazolyl which may optionally be mono- to trisubstituted by methyl, ethyl, n-propyl, i-propyl, n-butyl, i-butyl, s-butyl, t-butyl, CF_3 , methoxy, ethoxy, F, Cl, Br,

5 R^2 is COOR^{24} ,

in which

10 R^{24} is hydrogen or straight-chain or branched alkyl having up to 4 carbon atoms,

15  X is straight-chain or branched alkylene having up to 8 carbon atoms or straight-chain or branched alkenediyl having up to 8 carbon atoms which may in each case contain one to three groups from the group consisting of phenyl, phenyloxy, O, CO and CONR^{30} ,

in which

20 R^{30} is hydrogen, straight-chain or branched alkyl having up to 6 carbon atoms or cycloalkyl having 3 to 6 carbon atoms,

n is 1 or 2,

25 R^1 is COOR^{35} ,
in which

R^{35} is hydrogen or straight-chain or branched alkyl having up to 6 carbon atoms.

30 6. Compounds according to Claim 3,

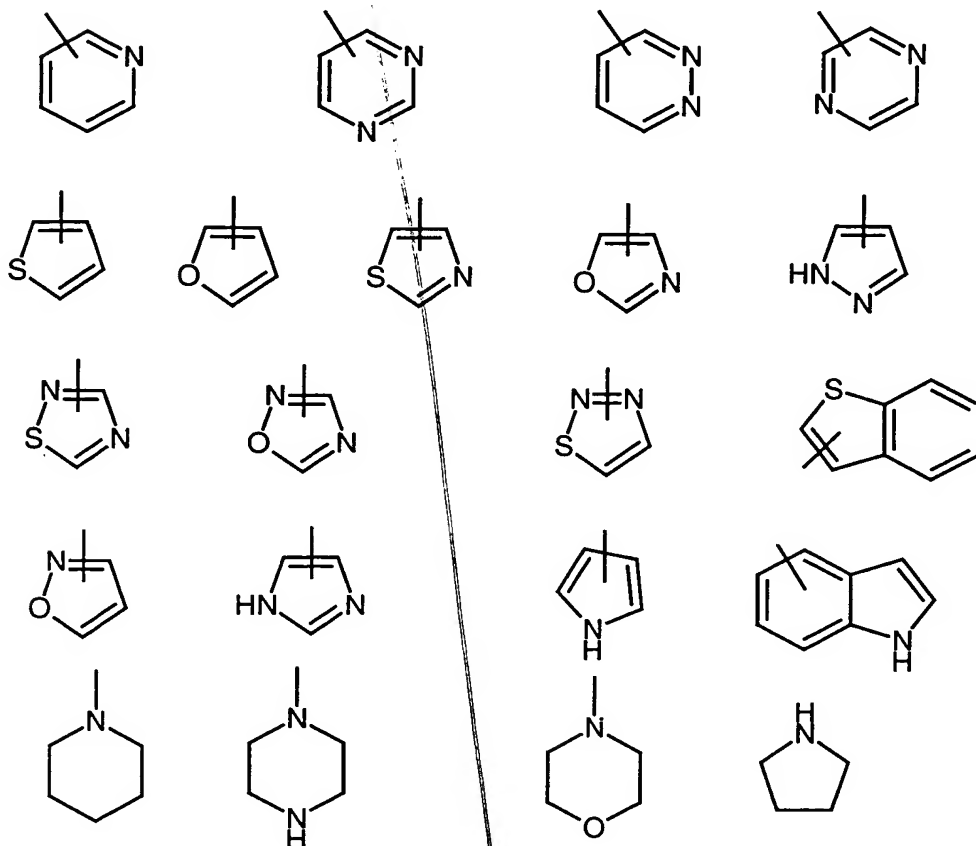
in which

35 V is O,

Q is straight-chain or branched alkylene having up to 9 carbon atoms or straight-chain or branched alkenediyl or straight-chain or branched alkinediyl having up to 4 carbon atoms which may be monosubstituted by halogen,

5

Y is H, cyclohexyl, phenyl or a heterocycle from the group consisting of



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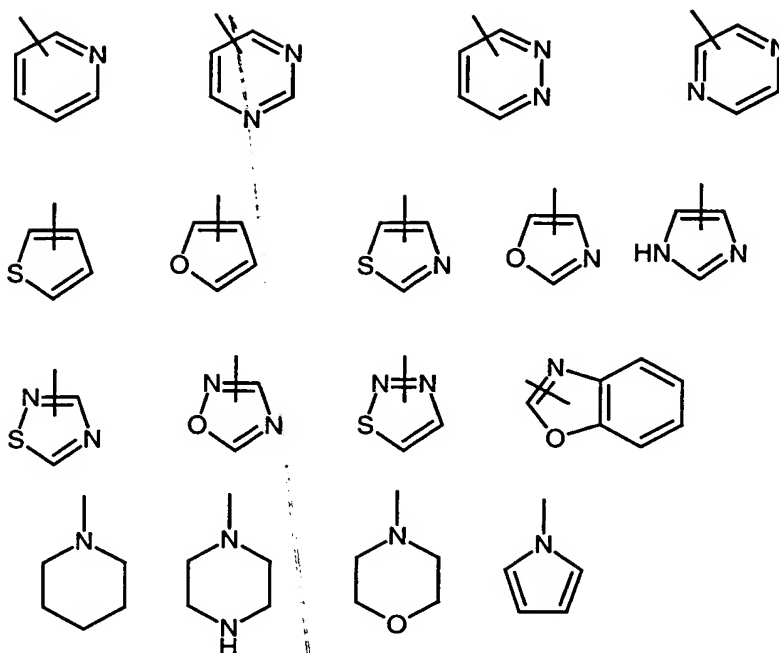
where the cyclic radicals may in each case be mono- to trisubstituted by straight-chain or branched alkyl, straight-chain or branched alkenyl, straight-chain or branched alkynyl, straight-chain or branched alkoxy, straight-chain or branched alkoxyalkoxy, straight-chain or branched halogenoalkyl, straight-chain or branched halogenoalkoxy having in each case up to 4 carbon atoms, straight-chain or branched cycloalkyl having 3 to 6 carbon atoms, F, Cl, Br, I, NO_2 , SR^6 , NR^8R^9 , $\text{NR}^7\text{COR}^{10}$ or $\text{CONR}^{11}\text{R}^{12}$,

15

in which

- 5 R^6 is hydrogen, straight-chain or branched alkyl having up to 4 carbon atoms or straight-chain or branched halogenoalkyl having up to 4 carbon atoms,
- R^7 is hydrogen, or straight-chain or branched alkyl having up to 4 carbon atoms,
- 10 R^8, R^9, R^{11} and R^{12} independently of one another are hydrogen, straight-chain or branched alkyl having up to 4 carbon atoms or phenyl,
- where the phenyl radical may be mono- to trisubstituted by F, Cl Br, hydroxyl, methyl, ethyl, n-propyl, i-propyl, n-butyl, s-butyl, i-butyl, t-butyl, methoxy, ethoxy, amino, acetylamino, NO_2 , CF_3 , OCF_3 or CN,
- 15 or two substituents R^8 and R^9 or R^{11} and R^{12} may be attached to one another forming a five- or six-membered ring which may be interrupted by O or N,
- 20 R^{10} is hydrogen, straight-chain or branched alkyl having up to 4 carbon atoms or phenyl,
- where the phenyl radical may be mono- to trisubstituted by F, Cl Br, hydroxyl, methyl, ethyl, n-propyl, i-propyl, n-butyl, s-butyl, i-butyl, t-butyl, methoxy, ethoxy, amino, acetylamino, NO_2 , CF_3 , OCF_3 or CN;
- 25

and/or the cyclic radicals may in each case be mono- to trisubstituted by phenyl or a heterocycle from the group consisting of



which may be attached directly or via a group O, S, SO, SO₂, straight-chain or branched alkylene, straight-chain or branched alkenediyl, straight-chain or branched alkyloxy, straight-chain or branched oxyalkyloxy, straight-chain or branched sulphonylalkyl, straight-chain or branched thioalkyl having in each case up to 4 carbon atoms and which may be mono- to trisubstituted by straight-chain or branched alkyl, straight-chain or branched alkoxy, straight-chain or branched alkoxyalkoxy, straight-chain or branched halogenoalkyl or straight-chain or branched alkenyl having in each case up to 4 carbon atoms, F, Cl, Br, I, CN, SCH₃, OCF₃, NO₂, NR⁸R⁹ or NR¹⁴COR¹⁷,

in which

R¹⁴ is hydrogen, straight-chain or branched alkyl having up to 6 carbon atoms or cycloalkyl having 3 to 6 carbon atoms,

and

R¹⁷

is hydrogen, straight-chain or branched alkyl having up to 6 carbon atoms, straight-chain or branched alkenyl having up to 6 carbon atoms, aryl having 6 to 10 carbon atoms, an aromatic heterocycle having 1 to 9 carbon atoms and up to 3 heteroatoms from the group consisting of S, N and O or cycloalkyl having 3 to 6 carbon atoms, which may furthermore optionally be substituted by F, Cl, Br, hydroxyl, methyl, ethyl, n-propyl, i-propyl, n-butyl, s-butyl, i-butyl, t-butyl, methoxy, ethoxy, amino, acetylamino, NO₂, CF₃, OCF₃ or CN;

and/or the cyclic radicals may be fused with an aromatic or saturated carbocycle having 1 to 10 carbon atoms or an aromatic or saturated heterocycle having 1 to 9 carbon atoms and up to 3 heteroatoms from the group consisting of S, N and O,

R³

is hydrogen or fluorine,

m

is an integer from 1 to 2,

W

is -CH₂- or -CH₂CH₂-,

U

is -CH₂-,

A

is phenyl which may optionally be mono- to trisubstituted by methyl, ethyl, n-propyl, i-propyl, n-butyl, i-butyl, s-butyl, t-butyl, CF₃, methoxy, ethoxy, F, Cl, Br,

R²

is COOR²⁴,

in which

R²⁴

is hydrogen or straight-chain or branched alkyl having up to 4 carbon atoms,

5 X is straight-chain or branched alkylene having up to 6 carbon atoms or
straight-chain or branched alkenediyl having up to 6 carbon atoms,
which may each contain one to three groups from the group consisting
of phenyloxy, O, CO and CONR³⁰,
in which

10 R³⁰ is hydrogen, straight-chain or branched alkyl having up to
6 carbon atoms or cycloalkyl having 3 to 6 carbon atoms,

n is 1 or 2,

R¹ is COOR³⁵,

15 in which

R³⁵ is hydrogen or straight-chain or branched alkyl
having up to 4 carbon atoms.

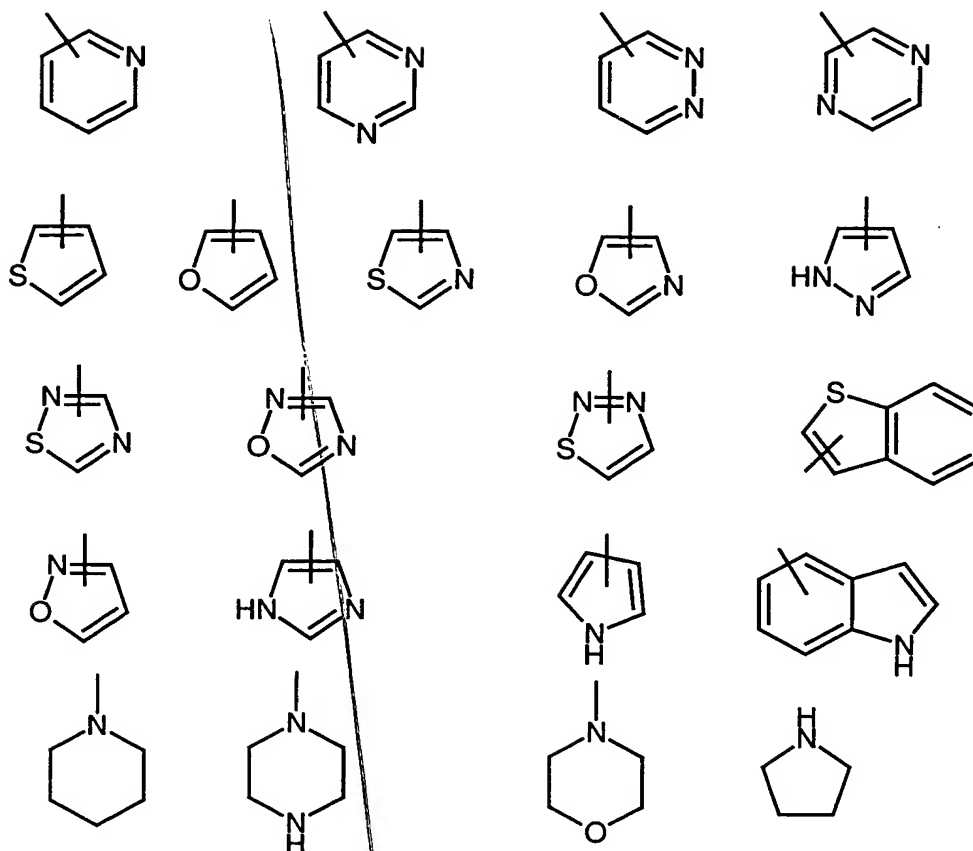
20 7. Compounds according to Claim 3,

in which

25 V is O,

Q is straight-chain or branched alkylene having up to 9 carbon atoms or
straight-chain or branched alkenediyl or straight-chain or branched
alkinediyl having up to 4 carbon atoms which may be monosubstituted
by halogen,

30 Y is H, cyclohexyl, phenyl or a heterocycle from the group consisting of



where the cyclic radicals may in each case be mono- to trisubstituted by straight-chain or branched alkyl, straight-chain or branched alkenyl, straight-chain or branched alkynyl, straight-chain or branched alkoxy, straight-chain or branched alkoxyalkoxy, straight-chain or branched halogenoalkyl, straight-chain or branched halogenoalkoxy, having in each case up to 4 carbon atoms, straight-chain or branched cycloalkyl having 3 to 6 carbon atoms, F, Cl, Br, I, NO₂, SR⁶, NR⁸R⁹, NR⁷COR¹⁰ or CONR¹¹R¹²,

in which

R⁶ is hydrogen, straight-chain or branched alkyl having up to 4 carbon atoms or straight-chain or branched halogenoalkyl having up to 4 carbon atoms,

R^7 is hydrogen or straight-chain or branched alkyl having up to 4 carbon atoms,

5 R^8, R^9, R^{11} and R^{12} independently of one another are hydrogen, straight-chain or branched alkyl having up to 4 carbon atoms or phenyl,

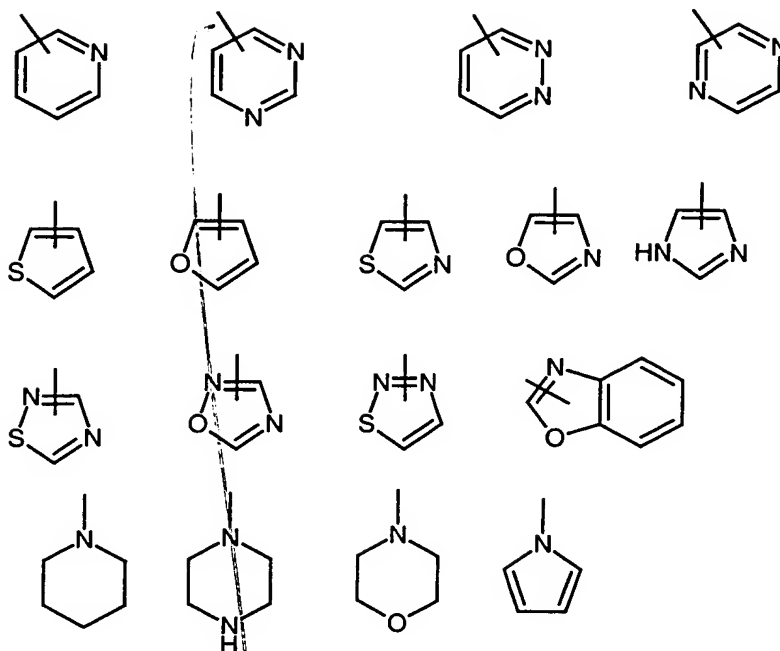
where the phenyl radical may be mono- to trisubstituted by F, Cl Br, hydroxyl, methyl, ethyl, n-propyl, i-propyl, n-butyl, s-butyl, i-butyl, t-butyl, methoxy, ethoxy, amino, acetylamino, NO_2 , CF_3 , OCF_3 or CN,

10 or two substituents R^8 and R^9 or R^{11} and R^{12} may be attached to one another forming a five- or six-membered ring which may be interrupted by O or N,

15 R^{10} is hydrogen, straight-chain or branched alkyl having up to 4 carbon atoms or phenyl,

where the phenyl radical may be mono- to trisubstituted by F, Cl Br, hydroxyl, methyl, ethyl, n-propyl, i-propyl, n-butyl, s-butyl, i-butyl, t-butyl, methoxy, ethoxy, amino, acetylamino, NO_2 , CF_3 , OCF_3 or CN;

20 and/or the cyclic radicals may in each case be mono- to trisubstituted by phenyl or a heterocycle from the group consisting of



HS

which may be attached directly or via a group O, S, SO, SO₂, straight-chain or branched alkylene, straight-chain or branched alkenediyl, straight-chain or branched alkyloxy, straight-chain or branched oxyalkyloxy, straight-chain or branched sulphonylalkyl, straight-chain or branched thioalkyl having in each case up to 4 carbon atoms and which may be mono- to trisubstituted by straight-chain or branched alkyl, straight-chain or branched alkoxy, straight-chain or branched alkoxyalkoxy, straight-chain or branched halogenoalkyl or straight-chain or branched alkenyl having in each case up to 4 carbon atoms, F, Cl, Br, I, CN, SCH₃, OCF₃, NO₂, NR⁸R⁹ or NR¹⁴COR¹⁷,

in which

R¹⁴ is hydrogen, straight-chain or branched alkyl having up to 6 carbon atoms or cycloalkyl having 3 to 6 carbon atoms,

and

5

10

15

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25

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35

 R^{17}

is hydrogen, straight-chain or branched alkyl having up to 6 carbon atoms, straight-chain or branched alkenyl having up to 6 carbon atoms, aryl having 6 to 10 carbon atoms, an aromatic heterocycle having 1 to 9 carbon atoms and up to 3 heteroatoms from the group consisting of S, N and O or cycloalkyl having 3 to 6 carbon atoms, which may furthermore optionally be substituted by F, Cl, Br, hydroxyl, methyl, ethyl, n-propyl, i-propyl, n-butyl, s-butyl, i-butyl, t-butyl, methoxy, ethoxy, amino, acetylamino, NO_2 , CF_3 , OCF_3 or CN;

and/or the cyclic radicals may be fused with an aromatic or saturated carbocycle having 1 to 10 carbon atoms or an aromatic or saturated heterocycle having 1 to 9 carbon atoms and up to 3 heteroatoms from the group consisting of S, N and O,

 R^3

is hydrogen or fluorine,

m

is an integer from 1 to 2,

W

is $-CH_2-$ or $-CH_2CH_2-$,

U

is $-CH_2-$,

A

is phenyl which may optionally be mono- to trisubstituted by methyl, ethyl, n-propyl, i-propyl, n-butyl, i-butyl, s-butyl, t-butyl, CF_3 , methoxy, ethoxy, F, Cl, Br,

 R^2

is $COOH$,

X

is straight-chain or branched alkylene having up to 6 carbon atoms or straight-chain or branched alkenediyl having up to 6 carbon atoms which may in each case contain one to three groups from the group consisting of phenyloxy, O, CO and $CONR^{30}$,

in which

R^{30} is hydrogen, straight-chain or branched alkyl having up to 6 carbon atoms or cycloalkyl having 3 to 6 carbon atoms,

5

n is 1 or 2,

R^1 is COOH.

10 8. Compounds according to Claim 3,

in which

V is O,

15

Q is CH_2 ,

Y is phenyl which is substituted by a radical selected from the group consisting of 2-phenylethyl, cyclohexyl, 4-chlorophenyl, 4-methoxyphenyl, 4-trifluoromethylphenyl, 4-cyanophenyl, 4-chlorophenoxy, 4-methoxyphenoxy, 4-trifluoromethylphenoxy, 4-cyanophenoxy, 4-methylphenyl,

20

R^3 is hydrogen or fluorine,

25

m is an integer from 1 to 2,

W -is CH_2CH_2 -,

30

U is $-CH_2$ -,

A is phenyl,

R^2 is COOH, where R_2 is located in the 4-position to the radical U,

35

X is $(\text{CH}_2)_4$.

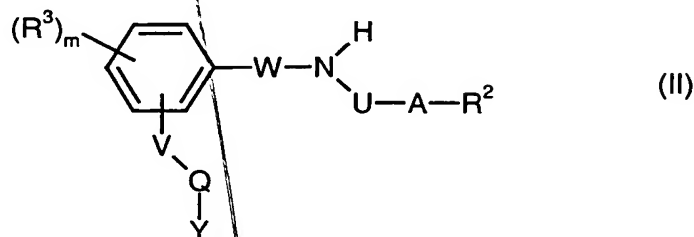
R^1 is COOH .

5

9. Process for preparing compounds of the general formula (I), characterized in that

[A] compounds of the formula (II)

10



are reacted with compounds of the formula (III)

15

E-X-R^1 (III)

in which

$\text{R}^1, \text{R}^2, \text{R}^3, \text{V}, \text{Q}, \text{Y}, \text{W}, \text{X}, \text{U}, \text{A}$ and m are as defined in Claim 3,

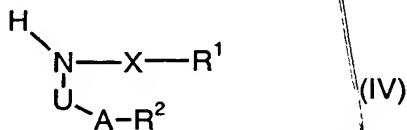
20

E is either a leaving group which is substituted in the presence of a base or is an optionally activated hydroxyl function;

25

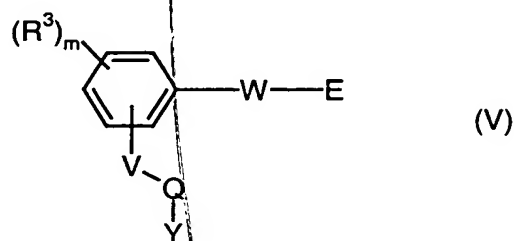
or

[B] compounds of the formula (IV)



30

are reacted with compounds of the formula (V)



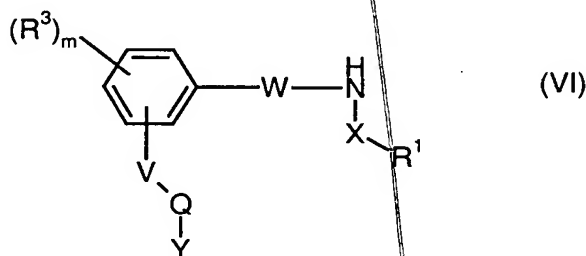
in which

R^1 , R^2 , R^3 , V, Q, Y, W, X, U, A and m are as defined in Claim 3,

E is either a leaving group which is substituted in the presence of a base or is an optionally activated hydroxyl function;

or

[C] compounds of the formula (VI)



are reacted with compounds of the formula (VII)



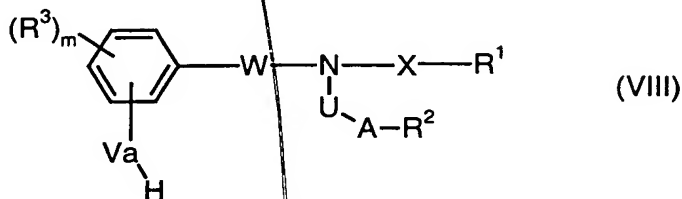
in which

R^1 , R^2 , R^3 , V, Q, Y, W, X, U, A and m are as defined in Claim 3,

E is either a leaving group which is substituted in the presence of a base or is an optionally activated hydroxyl function;

or

[D] compounds of the formula (VIII),

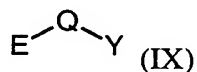


in which

Va is O or S and

W, A, X, U, R¹, R², R³ and m are as defined in Claim 3,

are reacted with compounds of the formula (IX)



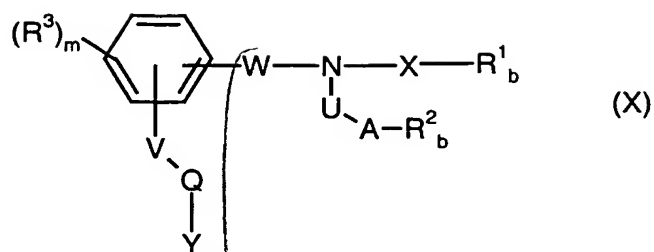
in which

Q, Y are as defined in Claim 3,

E is either a leaving group which is substituted in the presence of a base or is an optionally activated hydroxyl function;

or

[E] compounds of the formula (X)



in which

5

R^3 , V, Q, Y, W, X, U, A and m are as defined in Claim 3,

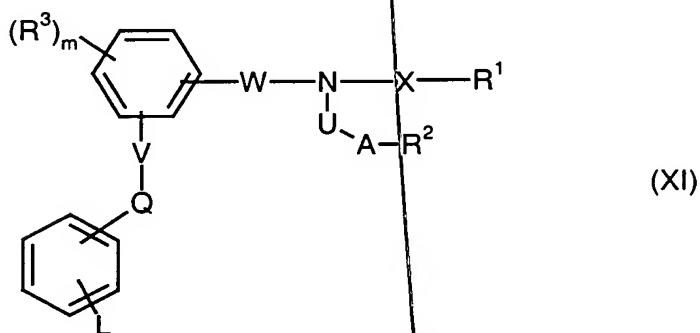
R^1_b and R^2_b independently each represent CN or COOAlk, where Alk represents a straight-chain or branched alkyl radical having up to 6 carbon atoms,

are converted with aqueous solutions of strong acids or strong bases into the corresponding free carboxylic acids;

15

or

[F] compounds of the formula (XI)



20

in which

R^1 , R^2 , R^3 , V, Q, Y, W, X, U, A and m are as defined in Claim 3,

25

L represents Br, I or the group CF_3SO_2-O ,

are reacted with compounds of the formula (XII)



in which

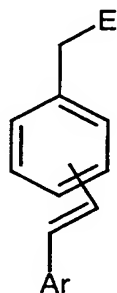
M represents an aryl or heteroaryl radical, a straight-chain or branched alkyl, alkenyl or alkynyl radical or cycloalkyl radical or represents an arylalkyl, an arylalkenyl or an arylalkynyl radical,

Z represents the groupings $-\text{B}(\text{OH})_2$, $-\text{CH}\equiv\text{CH}$, $-\text{CH}=\text{CH}_2$ or $-\text{Sn}(\text{nBu})_3$,

in the presence of a palladium compound, if appropriate additionally in the presence of a reducing agent and further additives and in the presence of a base;

or

[G] compounds of the formula (XIII)



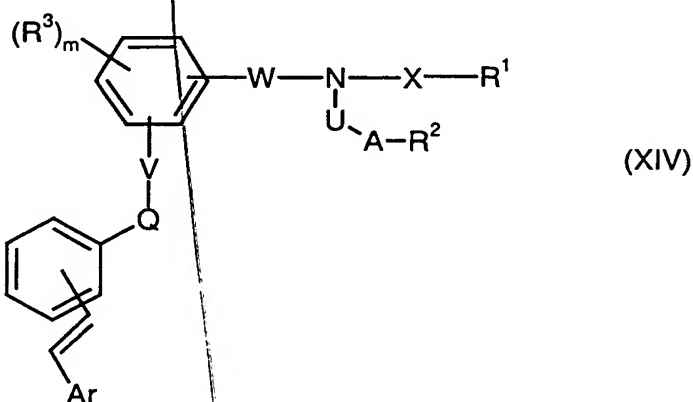
(XIII)

in which

Ar represents an aryl or heteroaryl radical,

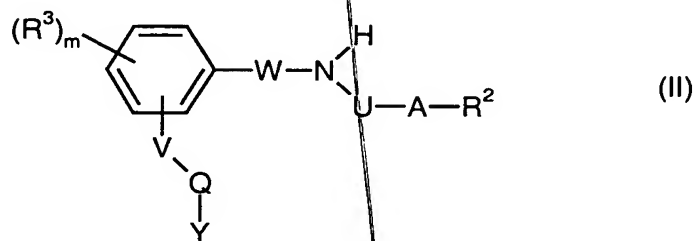
E is a leaving group which is substituted in the presence of a base,

are reacted according to process D with compounds of the formula (VIII) and the resulting compounds of the formula (XIV)



are hydrogenated with hydrogen in the presence of a catalyst.

10. Compounds of the formula (II)

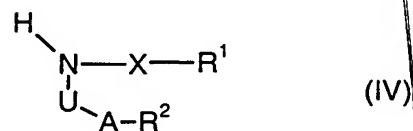


10

in which

V, Q, Y, R^3 , m, W, N, U, A and R^2 are as defined in Claim 3.

- 15 11. Compounds of the formula (IV)

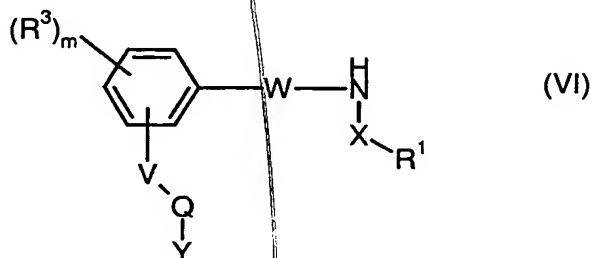


in which

20

U, A, X, R^1 and R^2 are as defined in Claim 3.

12. Compounds of the formula (VI)



in which

V, Q, Y, R³, m, W, X and R¹ are as defined in Claim 3.

13. Medicaments, comprising at least one compound of the general formula (I) according to any of the preceding claims.
14. Use of compounds of the formula (I) according to any of the preceding claims for preparing a medicament for the treatment of cardiovascular disorders.
15. Use of compounds of the general formula (I) according to any of the preceding claims for preparing medicaments for the treatment of angina pectoris, ischaemias and cardiac insufficiency.
16. Use of compounds of the general formula (I) according to any of the preceding claims for preparing medicaments for the treatment of hypertension, thromboembolic disorders, arteriosclerosis and venous disorders.
17. Use of compounds of the general formula (I) according to any of the preceding claims for preparing medicaments for the treatment of fibrotic disorders.
18. Use according to Claim 16, characterized in that the fibrotic disorder is hepatic fibrosis.

add Hep